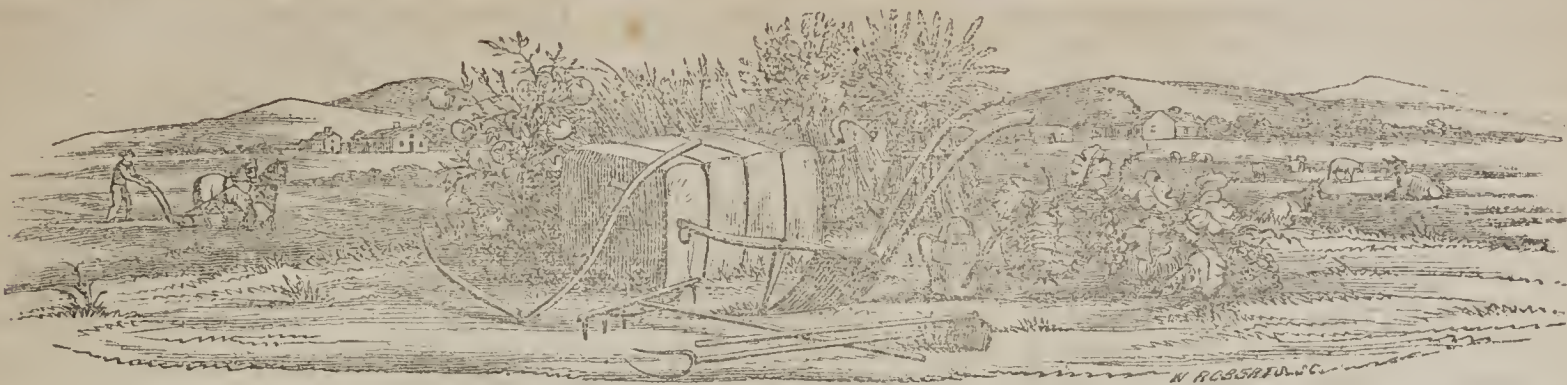


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# FARMER AND PLANTER.

DEVOTED TO AGRICULTURE, HORTICULTURE, MECHANICS, DOMESTIC AND RURAL ECONOMY.

VOL. III.

PENDLETON, S. C., DECEMBER, 1852.

No. 12.

## The Farmer and Planter

Is published monthly at Pendleton, S. C.,

BY GEO. SEABORN & J. J. GILMAN,

Editors and Proprietors.

### TERMS.

1 copy, one year (invariably in advance),	\$1
6 copies one year " " " "	5
25 copies, " " " " " "	20
100 copies, " " " " " "	75

All letters, except communications for the Farmer and Planter, must be post paid to insure attention.

### Manures.—No. 7.

*Their Uses, History, Modes of Preparation, Comparative Value, Rationale of their Causes of Action, Etc. Etc.*

BY PROF. J. J. MAPES.

We cannot but fear that our farmer readers are already tired of our long stories about farm yards and their abuses, but whenever we go away from home we find such egregious wastes of manures and faulty applications of them to the soil, that we return the more determined to write on, keeping our readers posted up with our experiments and observations. We yesterday visited the farm of a friend who manures with a most liberal hand, and spares no expense in procuring large quantities of night soil, and indeed every substance he can obtain which he supposes may benefit his soil; but with all this he manures badly and extravagantly. Anything he supposes good for manure is used without any reference to the chemical requirements of the crop to which it is to be applied. He was surprised that his early York cabbages were not as good as some of his neighbors', but never for a moment seemed to suspect that the general manure heap, so well calculated for potatoes, was not equally applicable to cabbages, and notwithstanding that his

manure has not acted well with early cabbages, he will probably apply the same to his late cabbage crop. His land is void of phosphates, and until he applies them he cannot succeed well with the brassica tribe.

But to return to the barn yard, and pursue the subject of our last number.

The quality of manures must necessarily depend much upon the kind of food used by the animals producing it: thus the manure from horses fed principally on hay and straw, cannot be as good as when corn, oats, oil-cake and other more nutritive articles of food are used. In cattle yards the manure from the straw yard is very inferior to that arising from the use of richer food. In some parts of the south and west the cattle are fed on whole corn, and the hogs follow them in the field and fatten on the excrement of the cattle. Cattle soiled in summer on clover, grass, &c., yield manure double in value to that of winter store-fed cattle. The manure from fattening hogs is also very superior to that of pigs in a lean state, and the same causes account for the fact that night soil is much stronger than any manure of a vegetable origin.

Too much value is usually given to straw; for an equal dry weight of saw dust, tanners' bark, or turf, mixed with the same amount of excrement of cattle, is equally valuable and entirely superior to a similar weight of salt hay. Turf or swampy muck when first dried and then wetted with the urine of cattle gives a result far more than the ordinary farm yard manure with its usual admixture of straw. Peat that has been thoroughly disintegrated by winter frosts and then placed under cattle, so as to receive the urine before it loses the animal warmth, makes a manure entirely superior for

general purposes to that made with straw in the open cow yard.

The quantity of the manure is also dependent in part upon the age of the animal, for young animals require large amounts of phosphoric acid, lime and nitrogenous substances for the formation of bone, and all this must be abstracted from the food. Consequently their manure cannot be as useful as is that of older cattle for the growth of such articles as require large amounts of the phosphates, such as barley, clover, wheat, turnips, &c., &c. The quantity of manures are also affected by other causes, such as exercise, giving milk, &c., &c.—Animals being fatted and at rest, are well known to produce the most powerful manures, while those which work hard and are badly fed, give manures of but little value.

Manures produced in winter are inferior to manures produced in summer, for the digestive organs of all animals are in better order in cold weather, and less of the nutritive principles are parted with.

"The quantity of manure produced by cattle from a given weight of food has been examined by Block. He found that 100 lbs. of rye straw yielded only 43 lbs. of dried excrement, (liquid and solid,) while 100 lbs. of hay gave 44 lbs. Food which contains many watery parts furnished, as may be naturally supposed, a still smaller proportion; for instance, 100 lbs. of potatoes gave only 14 lbs.; 100 lbs. of mangle wurtzel 6 lbs., and 100 lbs. of green clover 9½ lbs. of dried excrement.—*Jour. Royal Ag. Society*, p. 461.

M. Bousingault has experimentalized upon the same subject, as may be seen from the following table of the component parts of the food consumed by, and of the excrements of a horse and a cow,



during 24 hours, (*Leibig's Organic Chemistry*). The weights in this table are given in grammes—a gramine being equal to 15.44 grains:

ARTICLES OF FOOD.	Weight in fresh state.	Weight in dry state.	Carbon.	Hydrogen.	Oxygen.	Nitrogen.	Salts & earthy matter.
<i>By the Horse.</i>							
Hay.....	7,500	6,465	2961.0	323.2	2502.0	97.0	581.8
Oats.....	2,270	1,927	977.0	123.3	707.2	42.4	77.1
Water.....	16,000						13.3
Total.....	25,770	8,392	3938.0	446.5	3209.2	139.4	672.2
Total excretions in the same time....	15,580	3,827	1472.9	191.3	1353.0	115.4	634.5
<i>By the Cow.</i>							
Potatoes.....	15,000	4,170	1839.0	241.9	1830.6	50.0	631.5
After grass.....	7,500	6,315	2974.4	253.4	2204.0	151.5	208.5
Water.....	6,000						50.0
Total.....	82,500	10,485	4813.4	595.5	4034.6	201.5	889.0
Total excretions in 24 hours.....	45,152	6111.4	2601.6	332.0	2082.7	174.5	920.6

But few operators seem to be aware that during the fermentation of dung much more than half its beneficial qualities are lost under the ordinary modes of exposure, and that by proper composting all this may be saved. Manures also require great subdivision in the soil, and this can only be attained by their being composted with some proper divisor.—Lord Meadowbank is entitled to the credit of first having used muck or peat moss as a divisor, and although others had previously used the same materials as manures, they had not used them in as available a manner.

Every farmer knows that the wash of fertile fields, when collected in ditches or low spots is valuable as manure, but only those deposits of recent dates had been so used before the time of Lord Meadowbank; but since his successful experiments farmers have had their attention called to the use of deposits of great age. Many farms have low places containing a black spongy deposit of many feet thick, and although from the position of our surrounding highland it must be evident that this deposit is an accumulation of the washings of the surrounding country, still its use as manure was not thought of. Many argued that it was sour and cold, and would not readily pass into a state of fermentation, and therefore that it could not be profitably used as manure. The salt meadows of New Jersey, of which Essex county alone has 42,000 acres, are of this character; and notwithstanding the fact that the very highlands from whence the deposit forming these meadows have been washed, was in sight and nearly sterile in consequence, still their proprietors seem to have toiled on without availing themselves of the fertilizing materials within

their reach. These meadows and all similar deposits are organic matter not in a state of decay, and until the excess of acidity they contain is neutralized, they cannot be fermented. The large amount of undecomposed vegetable matter in the form of root fibre, &c., remains undecomposed, and the soluble and insoluble humus from the presence of acidity is unavailable. The question must occur to all, *Cannot this inert mass be so treated as to give it the properties of more recent deposits such as farmers use with advantage?* and if so, could it not be used as a cheap divisor for stable manures, thus rendering them doubly useful? We answer yes; all this may be done, and after fair experience we assert without the fear of contradiction, that these and similar deposits can be rendered, by proper admixtures, fully equal to a similar weight of barn yard manure.

Our plan is as follows: dig the muck during summer or fall, and leave it exposed in ridges to the effects of winter frosts, and the frequent freezings and thawings will render it pulverulent by spring. Then cart it alongside your manure sheds, and as it is laid outside the shed, mix with each cord, four bushels of the salt and lime mixture recommended in another part of this work. In thirty days it will be rendered entirely pulverulent, and in this state may be used for composting under the shed as follows: Throw your stable and other manures under the shed daily, spreading them out thinly, and then covering with twelve times their bulk of this decomposed muck. The absorbent power of this muck will take up and retain all the ammonia given off by the stable manures, and as the heap increases the whole mass will become equally heated.

Make this heap 4½ feet high, and turn it once over at the end of thirty days after its completion, covering the upper surface with a fresh quantity of muck.—This manure will be ready for use in 3 weeks after being turned, and every load of it will be found equal to a load of pure stable manure. In the stable, underlay the bedding with this muck, and the urine of the animal passing through the bedding will be received by the muck while it contains the animal warmth, and in this state the urine will decompose ten times the amount of muck as if applied to it after the animal warmth had left the urine. Remove this muck to the manure shed every ten days, and supply a new quantity. We have a stable containing six oxen, and every ten days we place under them five half cords of prepared muck, removing the solid excrements every morning from the surface of the bedding, and thus the muck can only receive the urine. Under this arrangement the heat of the body of the animal, while lying down at night, assists the urine to decompose the muck, while its absorbent powers keep the bedding perfectly dry. This muck being removed each ten days to the manure shed, readily ferments, and is found to be fully equal to a similar quantity of stable manure.

Large quantities of this decomposed muck may be thrown to the hog pens, and it will be thoroughly mixed by the hogs with their manure, while its power of absorbing the gases given off will keep the swine in good health.

Hen and pigeon dung mixed with this muck will render large quantities available as manure for onions, turnips, &c. When the spent ley of the soap boilers or other refuse of factories can be obtained and mixed with the prepared muck it will be found advisable so to use it.

A dead horse covered with ten bushels of unleached wood ashes and buried in twenty cords of this muck, will render the whole mass a valuable manure.

Those who will use barn yards for cattle should have a deep place on one side, of easy approach for carts, and keep it well filled with prepared muck, emptying and renewing it occasionally; as the drainage of the yard will make more manure, and of an equal quality, than the solid excrement of the animals, muck placed loosely in a low place to receive the drainage will be better acted upon than if spread over the whole yard; as



the treading of the cattle for any great length of time will render it too compact for fermentation.

Manures composted with muck render clayey soils more free and consequently more cheaply tillable, while sandy soils are rendered more retentive of moisture and less liable to blow.

Butcher's hog pen manure, when mixed with fifteen times its bulk of muck, is an excellent general manure after fermentation, and twenty loads of muck may be profitably mixed with one load of night soil.

For fruit trees, this decomposed muck with the addition of one bushel of salt to the cord, is preferable to any other manure.

Like charcoal dust, the prepared muck takes up and retains all the gases, and a single bushel per week thrown into a privy will prevent all disagreeable odor.

Composts made with muck should never be stamped or compacted in any way, but if they are found to be too hot by fermentation, add more muck on top, and the resultant gases from below will be retained, rendering the new quantity of muck added fully equal to that below.

The qualities of meadow muck, peat, turf, &c., &c., vary much, and as a matter of course partake of the character of the adjacent highland soil. Some parts of the Jersey meadows contain clay, and of precisely the same chemical composition as that found on our farm, while other parts are entirely free from alumina. We visited a peat moss a day or two since, located between Newark and Camptown, Essex county, N. J. This deposit is the best we have ever seen, and is sufficiently extensive to manure the county. Like the *Prairie-tremblant*, the surface feels under your feet as if it were a pulverulent mass supported on the surface of a lake, and on digging six feet through a mass of powdery brown and black humus, a bright yellow seam of undecomposed leaves, roots, &c., is met with; this substance soon changes color by exposure, and by an admixture with stable manure readily decomposes. Such or similar deposits are to be found throughout the country, and we hope the *Working Farmer* may influence its readers to carry these treasures to the hill tops, and if all the brawling politicians of our villages could be harnessed to properly constructed carts and made to remove these deposits, they would benefit the country more than by displaying their ignorance in the discussion of

questions connected with political economy. We copy the following analysis of peat soils from the *Journal of the Royal Ag. Society*, vol. 2, p. 393:

"The chemical composition of peat soils of course varies in the proportion of their constituents.

"The following analysis of a specimen of an entirely barren peat moss, in a perfectly dry state, will give the farmer a tolerable idea of their composition:

Fine silicious sand.....	29 parts.
Inert vegetable matter.....	289 "
Alumina.....	14 "
Oxide of iron.....	30 "
Soluble vegetable matter with some sulphate of potass....	11 "
Sulphate of lime (gypsum)....	12 "
Loss.....	15 "

—400

Our readers must not suppose that, because the above described peat soil was barren in place, that it was valueless when removed, for by the addition of more sand and the conversion of the 289 parts of inert vegetable matter into its active constituents, this barren moss would render uplands highly fertile.

The analysis of an active or fertile peat moss, with which it will be well to compare the above; gave the following results, after being also dried in a gentle heat:

Fine silicious sand.....	156 parts.
Unaltered vegetable fibre.....	2 "
Decomposing vegetable matter.....	110 "
Silica (flint).....	102 "
Alumina (clay).....	16 "
Oxide of iron.....	4 "
Soluble vegetable and saline matter.....	4 "
Muriate of lime.....	4 "
Loss.....	2 "

—400

"Such is the usual chemical composition of peat. This, however, is occasionally varied by the presence of other substances, but the above sketch will afford a tolerably correct view of its ordinary properties; and this kind of knowledge will very materially aid the farmer in proceeding to examine the mode in which the composition of such soils may be attained so as to be rendered tenatable by useful varieties of plants."

When composts are required, for manure, in a hurry, much time may be saved by the use of ashes. Many farmers suppose that peat or meadow mud, pond or ditch scrapings, &c., may be decomposed and rendered useful by the addition of lime alone. This is a mistake, and un-

less the land to which it is applied really needs lime, such a mixture will be found to have no beneficial effect, except, perhaps, to mechanically disintegrate a clay soil.

Compost heaps and manure sheds are often placed for convenience in many parts of the farm, but in all cases where cattle yards are used a compost heap should be adjacent to it, so that all the urine may be thrown upon it; for the liquid manures, as we have before stated, are more valuable than the solid excrements.

One great excellence attributable to decomposed muck and other carbonaceous manures, is that they hold the volatile portions of manures most tenaciously, and when spread out on the field, are not so much injured by the effects of sun and air before being plowed under, as many other kinds of manures. We made an experiment last year, which was most conclusive on the subject of exposure of manures. The manure was spread early in the morning of a very hot day, on a piece of land, and from the absence of a plowman was left on the surface of the ground until afternoon, when it was plowed in, and at the time of plowing, a similar piece of ground was manured with a similar quantity of manure and was plowed in immediately. The crop on the first piece of ground (late cabbages) was entirely inferior to that on the second piece, both having been treated alike, except in the exposure of the manure in the one before it was plowed.—This spring the whole was manured alike, but still a marked difference is to be observed where the manure was exposed last year.

When cattle yards and stables are so arranged as to save the urine, weeds may be prevented from reproducing themselves by wetting them in the compost heap with urine; this kills the seeds and secures by fermentation their entire destruction. When urine cannot be had, weeds should be liberally salted in compost.

Many suppose that salt will prevent proper fermentation, but such is not the fact. It is true that very large quantities of salt will preserve either animal or vegetable matters, but small quantities accelerate their decomposition.

We have already said that for the purpose of rendering peat available as a manure, lime alone should never be added to it, but when it becomes requisite to use lime, as on clover lands, its action



will be much improved by sub-dividing the lime with muck, and the reason why lime has been found practically so much more useful, when thus applied, probably arises from the fact that the presence of the muck secures its most ultimate division, and that when particles of lime meet substances, containing ammonia, in the soil, instead of the ammonia being lost by the immediate action of the lime, it is retained by the muck until called for by the growing plants — *Work. Farmer.*

#### Well Done.

"That which is worth doing, is worth doing well."

MR. EDITOR:—I once made a rail fence around my corn lot, and said that will do; but, behold, it did badly, for the panels were so straight that the wind blew it down and my neighbor's cattle destroyed a portion of my corn, and they would have destroyed all, had I not cut hundreds of poles and brush, wherewith to prop and tie up my fence, so that the wind could not shake nor the cattle get through it. And my sons, this is not all about this matter, for I shot one of my neighbor's cattle and we had a falling out and a law suit about it. The next year the fire got into the leaves and brush around my fence and all went together like wild fire. So my crop of corn did not pay for the fence, and the fence gone. Now said I, I will make a stone fence in this clear place; and at it I went. When it was done it looked quite neat, and I said, now let the winds blow, and the fires rage, and the oxen charge, but I ask no boot; and so I did not for that year. But the next winter the frost gave my fence a shake on the hill side, and much of it tumbled. Now, if I had dug a level about twenty inches wide, and laid thereon some large stones as a foundation for the lower side of the fence, I would have saved my dollars and my mortification of mind.

I once put up a large rack and filled it with straw for my cattle. The feet of the poles not being well planted in the ground, it fell upon and killed a valuable cow for me. So not only my labor was lost but I was minus one cow worth \$25.

I once owned a piece of ground infested with the wire worm, and neglecting to plough in the winter, made no corn. And worse than that, a continuation of wet weather forced me to plough the land whilst wet, and it being clay, it was thereby much damaged. I thought this was bad, but one evil begets many;

so I had to borrow money, and go ten miles to buy bread.

I now own a meadow of five acres, through which, in days past, I cut a ditch to conduct a small stream. In June I mowed the meadow and had the hay nearly ready for stacking, when a heavy shower of rain fell and swept the platter. By this operation I lost one hundred dollars' worth of hay. Now just look at the ease: Had I spent only ten dollars in cutting a ditch sufficient to convey the water, (like my neighbor John,) I would have saved ninety dollars, and bad feelings, and my credit too.

Being a little stingy, I once trusted my spring house door to the tying of a rope, rather than expend a little money in the purchase of a lock; and behold some reformer took thence a large crock of butter, and a big jug of milk, altogether worth about six dollars. Now see that again: twenty-five cents would have bought a lock, then all were safe, and I should not have grieved at finding out I had a bad neighbor.

I told you above that I was stingy—aye it is bad for one to have to tell the truth on himself; but so it was, once my man George complained that he slept very cold, and requested me to give him another blanket, but I told him I could not afford it. The consequence was that I had to afford to pay a doctor twenty dollars to cure him of rheumatism, and one month's work lost besides.

The above reminds me of one of my neighbors who neglected to cram his house with mud until the cold weather was upon him. The consequence was, the mortar all fell, and six additional blankets had to be bought for night and an additional load of wood for day; and what was lost by the operation you can say as well as I.

I once had two neighbors, one a real German and the other an old fashioned Virginian. The German fenced a lot of grass for his cow, where she was always ready to be cared for, and to be milked in due season, rain or shine. The consequence was, the family had always a plenty of milk and butter of the very best quality. The Virginian turned his loose on the commons, and told her go ahead old lady, now shift for yourself. The consequence was the family had very little milk or butter, and that of very poor quality; and when the children cried for milk I don't know where my jug went to. Now, although I am getting a little out of order, I will tell you: every day, Sun-

day or no Sunday, about two hours by sun in the evening, a negro was started through the neighborhood in hunt of this cow. I have often heard the inquiry, "has you seen anything of my cow Pidy to-day?" Sometimes the cow was not found at all; but generally she was trotted home to be milked, and then starved until next day ten o'clock; and yes, when ten o'clock did come the flies came too. I don't know which to pity most, the old cow, the owner, or the law requiring the German to fence up his fields to keep off old Pidy.

Now you see that experience has taught me much; but behold it can now profit me nothing, for I am old and compelled to quit business. I can nevertheless write, and before bidding you adieu for the present, I admonish you to ever bear in mind that anything that is worth doing is worth doing well.—*Southern Planter.*

#### Fattening Animals.

The Shakers of Lebanon, N. Y., say, after an experience of thirty years, that in fattening swine upon Indian corn, one-third is saved by grinding into meal, and that one-fourth is saved by cooking—boiling it. This, as we understand it, makes a saving of one-half—which is probably somewhat exaggerated, but the saving is no doubt considerable. There can be no doubt, that on all farms where there are considerable numbers of cattle and swine to be fed, a mill and boiling apparatus, though they may be a little costly at first, would ultimately, and soon, indeed, reimburse all the expense. Grind and boil we say, therefore, to all farmers. The apathy that prevails upon this point in general is very strange.—Farmers are generally slow in adopting improvements in agriculture and agricultural implements, and comparatively few feed their cattle on cooked food, while some kinds of it are almost as grateful to the quadruped as to the biped; his lord and master.—*Globe.*

#### Raising Pigs.

Raising pork, if made a prominent portion of the farmer's business, will bring in as much ready money and produce as much nett profit as any one branch of his business. Breeding pigs for market is profitable, and those of the most approved kinds will always meet with a ready sale at fair prices. It was formerly thought that there was some risk in attempting to raise pigs, for it was frequently the case that a portion of



the litter would die when a few days old, and sometimes the sow would eat a portion of them as soon as they were born. But since "book farming" has become so common, remedies have been found for both these evils, and now there is no more risk in raising pigs than in raising calves. The pigs, and sometimes the sow, dies from over feeding, and by the use of improper food immediately after her accouchment. No milk or greasy slop should be given for three or four days. The best food is a thin gruel of scalded Indian meal dealt out in rather small quantities. When the pigs are a week old you may feed on whatever you wish to give them, and as abundantly as you please.

A hog requires both animal and vegetable food, and when her appetite is not gratified she will satiate it on her own offspring. A breeding sow should therefore be well supplied with meat or fish of some kind with her other food, especially for a week or so prior to the birth of the pigs. Regard these rules and all risk of loosing young pigs vanishes.

REMARKS.—We take the above from the *New Era* with the credit of *Exchange*; a credit that we only give under like circumstances. Instead of meat and fish being given to breeding sows that are in the habit of eating their offspring, we think kitchen slops and vegetables with salt, given plentifully just before and after pigging, will act as a preventive.—Eds. F. & P.

#### Potash on Trees.

In looking over the *New England Farmer* a few months since, I was not a little startled by an article from Mr. Coffin, stating the pernicious effect of ley as a wash for trees, as I had just treated mine with a pretty pungent preparation of the same. But though his were killed, mine are doing finely. The ley which I used was so strong as greatly to discolor my hands and nails, and I am quite sure the wash was rather more than a pound of potash to a gallon of water. I moistened a sponge and passed it once over the bark—simply wetting it. No doubt the trees would have absorbed more had I applied it, and perhaps to their injury. Was it not too much potash which Mr. Coffin applied rather than the strength?

I believe in the good effect of potash wash for young apple trees, as it easily erases the moss, prevents its further accumulation, obstructs insects, and gives to the trunks a good color and healthy appearance. But in future I shall be on my guard as to its strength. L.

The decision expressed in the last sen-

tence above is just what we have desired to accomplish in regard to the use of potash water. That every body "shall be on their guard," not only as to its strength, but as to its application. How carefully our correspondent used it. "I moistened a sponge," says he, "and passed it once over the bark—simply wetting it." Now that is a sensible use of so caustic a substance, and would rarely, if ever, be injurious in such hands. A tree is not a stock or a stone to be kicked and cuffed and cauterised and scourged with impunity. It lives, breathes and feels, and if it were a step or two higher in the scale of existence, would die from mere disgust at the treatment it often receives. But, we have no crotchets to cherish on this subject, and mean to avoid a dogmatic and opinionated spirit everywhere.—Ed. N. E. Farmer.

REMARKS.—We join in recommending every body "to be on their guard," for we, two springs since, killed some fine young trees by applying too liberally a solution of 1 lb. pearl ash and 1 pint of soft soap in 3 gallons of water. A very dry spell followed the application, and hence not being washed off, the caustic liquid turned the bark of the trees quite yellow and much injured those that escaped.—Eds. F. & P.

#### Tempering, Hardening, and Softening Metals.

USED IN THE MECHANICAL AND USEFUL ARTS.  
(Concluded from page 176.)

*Case-hardening wrought and cast-iron.*—The property of hardening is not possessed by pure malleable iron. But we have now to explain a rapid and partial process of cementation, by which wrought-iron is first converted exteriorly into steel, and is subsequently hardened to that particular depth, leaving the central portions in their original condition of soft fibrous iron. The process is very consistently called *case-hardening*, and is of great importance in the mechanical arts, as the process combines the economy, strength and internal flexibility of iron, with a thin casing of steel, which, although admirable as an armor of defence from wear or deterioration as regards the surface, is unfit for the formation of cutting edges or tools, owing to the entire absence of hammering subsequent to the cementation with the carbon. Cast-iron obtains in like manner a coating of steel, which surrounds the peculiar shape the metal may have assumed in the iron-foundry and workshop.

The principal agents used in case-

hardening are animal matters, as the hoofs, horns, bones and skin of animals. These are nearly alike in chemical constitution, and they are mostly charred and coarsely pounded. Some persons also mix a little common salt with some of the above. The works should be surrounded on all sides from half an inch to one inch thick.

The methods pursued by different individuals do not greatly differ. For example, the gun-smith inserts the iron work of the gun lock in a sheet iron case in the midst of bone-dust, (often not burned.) The lid of the box is tied on with iron wire, and the joint is luted with clay. It is then heated to redness as quickly as possible, and retained at that heat from half an hour to an hour, and the contents are quickly immersed in cold water. The objects sought are a steely exterior, and a clean surface covered with the pretty mottled tints, apparently caused by oxidation from the partial admission of air.

Some of the malleable iron castings, such as snuffers, are case-hardened, to admit of their better polish. It is usually done with burnt bone dust, and at a dull red heat. They remain in the fire about two or three hours, and should be immersed in oil, as it does not render them quite so brittle as when plunged into water. It must be remembered they are sometimes changed throughout their substance into an inferior kind of steel, by a process that should in such instances be called cementation, and not case-hardening. Consequently they will not endure violence.

The mechanic and engineer use horns, bone dust and leather, and allow the period to extend from two to eight hours, most generally four or five.—Sometimes, for its greater penetration, the process is repeated the second time, with new carbonaceous materials.—Some open the box and immerse the work in water direct from the furnace; others, with a view to preserve a better surface, allow the box to cool without being opened, and harden the pieces in an open fire as a subsequent operation.—The carbon once added, the work may be annealed and hardened much the same as ordinary steel.

When the case-hardening is required to terminate at any particular part, as a shoulder, the object is left with a band or projection; the work is allowed to cool without being immersed in water; the band is turned off, and the work when hardened in the open fire is only ef-



fectured so far as the original cemented surface remains. This ingenious method was introduced by Mr. Roberts, who considers the success of the case-hardening process to depend upon the proper application of the heat, and that, by proper management not to overheat the work, it may be made to penetrate three eighths of an inch in four or five hours.

A new substance for the case-hardening process, but containing the same elements as those more commonly employed, has of late years been added, namely, the prussiate of potash, (a salt containing two atoms of carbon and one of nitrogen,) which was made from a variety of animal matters.

It is a new application, without any change of principle. The time occupied in this steelifying process is sometimes only minutes instead of hours and days; as for example, when iron is heated in the open fire to a dull red, and the prussiate is either sprinkled upon or rubbed on it in the lump, it is returned to the fire for a few minutes and then immersed in water; but the process is then exceedingly superficial, and it may, if needful, be limited to any particular part upon which alone the prussiate is applied. The effect by many is thought to be partial, or in spots, as if the salt refused to act uniformly, in the same manner that water only moistens a greasy surface in places.

The prussiate of potash has been used for case-hardening the bearings of wro't iron shafts, but this seems scarcely worth the doing. It has been also employed with the view of giving additional and extreme (although superficial) hardness to steel, as in axle trees, Perkin's engraved steel plates, &c. But we have only heard of one individual who has encased work with this salt: it was for case-hardening the iron rollers and side plates of glaziers' vices, employed for milling window lead.

In the general way, the conversion of the iron into steel by case-hardening is quite superficial, and does not exceed the sixteenth of an inch. If made to extend to one-quarter or three-eighths of an inch in depth, to say the least, it would be generally useless, as the object is to obtain durability of surface, with strength of interior, and this would disproportionally encroach on the strong iron within. The steel obtained in this adventitious manner is not equal in strength to that converted and hammered in the usual way, and if sent in so deeply, the provision for wear

would far exceed that which is required.

Let us compare the case-hardening process with the usual conversion of steel. The latter requires a period of about seven days, and a very pure carbon, namely, wood charcoal, of which a minute portion only is absorbed; and it being a simple body, when the access of air is prevented by the proper security of the troughs, the bulk of the charcoal remains unconsumed, and is reserved for future use, as it has undergone no change. The hasty and partial process of cementation is produced in a period commonly less than as many hours with the animal charcoal, or than as many minutes with the prussiate of potash; but all these are compound bodies, (which contain cyanogen, a body consisting of carbon and nitrogen) and are never used a second time, but on the contrary the process is often repeated with another dose. It would be, therefore, an interesting inquiry for the chemist, as to whether the cyanogen is absorbed after the same manner as carbon in ordinary steel, (and which in Mackintosh's patent process was driven through the crucible in the form of carbonic acid gas, and is stated to be absorbed at the rate of one-thirtieth of an inch in depth each hour,) or whether the nitrogen assists in any way in hastening the admission of the carbon, by some as yet untraced affinity or decomposition.

This hasty supposition will apply less easily to cast-iron, which contains from three to seven times as much carbon as steel, and although not always hardened by simple immersion, is constantly under the influence of the case-hardening process, unless we adopt the supposition that the carbon in cast iron, which is mixed with the metal in the shape of cinder in the blast furnace, when all is in a fluid state, is in a less refined union than that instilled in a more æriform condition in the acts of cementation and case-hardening.

#### Short Rule for Measuring Corn, or any thing else in Bulk.

Ascertain the solid feet contained in the bulk to be measured, by multiplying its length, width and height together, then multiply this product by 8 and divide by 10, and you have the number of bushels—allowing one half for cobs, the other half will be the amount of corn when shelled. Or, for shortness, multiply the number of solid feet by four and strike off the right hand figure. Proof—The number of cubic inches in a solid foot (1728) are

to the number contained in a bushel (2150 2-5) as 8 to 10, that is, a solid foot is (eight-tenths) 8-10 of a bushel, hence, if you multiply the number of solid feet contained in a bushel by 8, and divide it by 10, you have it reduced to bushels.

EXAMPLE:—A bin of corn is 20 feet long, 15 wide, and 9 high—how many bushels of corn without cobs does it contain? Answer—1080 bushels.

20	length
15	width
<hr/>	
100	
20	
<hr/>	
300	
9	height.
<hr/>	
2700	
4	
<hr/>	

1080.0 bushels of shelled corn.

Now by the rule given in the August number:

20
15
<hr/>
100
20
<hr/>
300
9
<hr/>
2700
45
<hr/>
13500
10800
<hr/>
56 ) 121500 ( 2169
112
<hr/>
95
56
<hr/>
390
336
<hr/>
540
504
<hr/>

I also send you an excellent—

CURE FOR FOUNDER IN HORSES—Tried and found to relieve entirely in a few hours. Bleed profusely in the neck vein, bathe the legs in brine made boiling hot, and drench with alum (a teaspoonful) dissolved in a pint of water. When bathing the legs, wrap them up in woolen cloth, and pour on the water from the spout of a tea kettle—no fear of scalding the horse.

Yours, B. F. B

WORTH KNOWING.—To stop the bleeding of teeth, dissolve alum in alcohol; saturate a piece of cotton and pack the cavity from which the tooth has been extracted and bleeding will stop instantly.



**ORGANIC AND INORGANIC SUBSTANCES.**—The terms *organic* and *inorganic* occur so frequently in agricultural publications that a proper understanding of the precise sense in which they are used agriculturally, may be of service to some of our readers.

All forms of matter may be divided into two great classes or departments: organic and inorganic. Under the head of organic matter, is included "all such bodies as possess organs, on the action of which depend their growth and perfection." Thus the bodies of all living animals as well as their dead carcasses—all plants and their remains are to be regarded as organic matter, having once been the seat of life. Anything produced by the agency of living matter, properly belongs to this class, whether it exhibits a kind of structure, as in the fibres of plants and the muscles of animals, or whether, as in the bodies of plants and animals which have undergone decay, and where no evidences of structure remain. The changes which various animal and vegetable substances undergo, when submitted to different processes, such as burning, distillation, fermentation, &c., do not destroy their characters as organic matter. Under the head of inorganic matter is included the solid rocks and soils, the atmosphere, the waters of the seas and oceans; every thing which neither is nor has been the seat of life.

By a proper understanding of these terms, much that is frequently difficult of comprehension to the farmer unskilled in scientific terms, will at once become perfectly plain. But in attempting thus to render their true meaning as clear as is possible in the brief definitions we have given, we have no desire that inquiry should rest here. Every agriculturist should understand, not only the difference between organic and inorganic matter; but he should be able to comprehend fully, not only what are the constituent parts of animal substances, but of every plant he cultivates. If this were the case, who is prepared to estimate the degree of perfection to which the science of agriculture might be brought! And yet, how few there are, who are willing to devote a single hour or even half hour of each day to the acquisition of such invaluable knowledge.—*Farm Journal*.

**NEW VIRTUE IN COFFEE.**—The London Medical Gazette gives the result of numerous experiments with roasted coffee,

proving that it is the most powerful means not only of rendering vegetable and animal effluvia innocuous, but of actually destroying them. A room in which meat in an advanced degree of decomposition had been kept for some time, was instantly deprived of all smell on an open coffee roaster being carried through it, containing a pound of coffee newly roasted. In another room exposed to the effluvia occasioned by the clearing out of a dung pit, so that sulphuretted hydrogen and ammonia in great quantities could be chemically detected, the stench was completely removed within half a minute, on the employment of three ounces of fresh roasted coffee, whilst the other parts of the house were permanently cleansed of the same smell by being simply traversed with the coffee roaster, although the cleaning of the dung pit continued several hours after.

The best mode of using coffee as a disinfectant is to dry the raw bean, pound it in a mortar, and then roast the powder on a moderately heated iron plate, until it assumes a dark brown tint, when it is fit for use. Then sprinkle it into sinks or cess pools, or lay it on a plate in the rooms which you wish to have purified. Coffee acid or coffee oil acts more readily in minute quantities.

#### **Drenching Horses.**

Some persons assert that there is great danger in drenching horses from a bottle; also, that it is very difficult to make them swallow fluid. We never knew of any accident following the use of the bottle, where ordinary caution was observed. There is a space between the canine teeth and grinders, where the bottle can be introduced, and if kept in that position while drenching the horse, it cannot do any harm. Our usual plan is to stand on the right side of the horse, our back turned towards his body; we then take a firm hold of the lower jaw with the left hand, at the same time moderately elevating the head (not too high) while with the right we gradually pour down the contents of the bottle.—Time should be taken in the process, and if it is poured down in small quantities at a time, so much the better; the horse will be more likely to swallow it, especially if it shall be made palatable by the addition of a few caraway seeds or a little honey. Horses, like children, must be handled in the most gentle manner. They will generally refuse to drink even a little gruel, when any unnecessary severity is resorted to in its administration.

They may be coaxed but not forced.

In answer to the second objection, we observe that there is no more difficulty, (not half so much) in administering a drench to a horse, under ordinary circumstances, than there is in giving a ball. To the latter we have great objections.—First, in reference to its bulk; secondly, the length of time it takes for the gastric fluids to dissolve it, and lastly, its action is uncertain. Whereas, medicine given in the fluid form is readily taken up by the lacteals, and operates for good or evil, in much less time. It has also been urged that, when a horse is suffering from disease of the respiratory organs, the additional excitement following the act of drenching is unfavorable to the cure. Unfortunately we are in a worse predicament when a ball is given, for then the tongue is forcibly drawn out of the mouth, while the hand is passed up to its root, where the ball is deposited.—Our own experience in the matter leads us to decide in favor of the bottle. If any further proofs of its utility are wanting, we may mention the fact that one-half of our city horse-men are in the daily habit of administering drink from the bottle without accident.—*American Veterinary Journal*.

#### **Hay, Grasses, Seiling, &c.**

*Report of the Committee on Hay, &c., Read before the Newberry Agricultural Society at its annual meeting in 1852.*

The production of the best and cheapest for domestic animals, should be the great aim of the agriculturist. Without good crops, every department of domestic economy seems out of joint, for this involves a want of vigorous motive power, in fat work stock, in substantial porkers, and in goodly kine. Lacking these, the farmer is sure to lack a good supply of manure, and to supply the latter, nothing adds more than a good supply of food. Foremost in the department of forage stands good hay—regarded, as it is, the most valuable, because the most nutritious substances used as long food. In Northern latitudes where the grasses prevail more than with us, to the qualities of the higher order of the *ceralia*—the hay crop is of the very first importance, and I have often observed in travelling through some parts of Canada, in many extensive farms no grain whatever was grown—the hardy Canadian horse—equally hardy ox—and fleece bearing sheep—subsisting entirely for a period of six months of snow weather on hay alone. It might



create a smile for our farmers to be told that with the industrious French farmers in the beautiful rural hamlets skirting the St. Lawrence and its northern tributaries, hay is an important item in feeding hogs—but such is the fact, as it is the custom there to take up these “*Cochons de bois*” or wood pigs, at the approach of winter, and feed them till spring on *hay tea* and boiled Irish potatoes. Nearer home, on the summits of the Alleghanies—not more than one hundred and thirty miles from Newberry, are large and profitable farms, on which no grain is grown—the stock notwithstanding the extreme and rigorous cold of their elevated position subsisting on hay alone. A hardy and enduring race of vigorous domestic animals is invariably the result of such treatment. These facts are cited to show that my estimate of its nutritious value is not merely conjectural, but based on sustaining evidence. The hay crop in those parts mentioned is the only source relied on to sustain in winter all domestic animals. A similar estimate of its value is placed on it throughout the northern and eastern states—but as we travel southwards in our investigations, we observe that this important value is lost sight of, and a consequent decline in its use is the result. A mistaken policy of hurried work, precipitated on the country by the forced cultivation of cotton, causes our planters to rely instead on short crops of oats, and the universal practice of “stripping fodder” for a supply of long food. How far this is correct in point of economy, remains to be decided—yet there are those who have promulgated the doctrine based on experiment, who assert that pulling the blades is a positive loss. It certainly deprives the corn plant of its most vital organs—those peculiarly constructed, for finally elaborating the juices which constitute its principal value. I am one of those who believe it is better to cut the corn stalks off at the ground at that period when the grain is fully glazed, and save the provender by stacking the entire crop than it is to pull the fodder in the usual way. Fodder or corn blades dried is very indifferent food—not worth more as far as nutrition is concerned, than sedge grass dried, and it is a well known fact, that if it is fed alone to domestic animals, it will not sustain life. This I regard as convincing proof of its worthlessness.—On the other hand the corn stalk is rich saccharine matter, and the husk is highly nutritious, and hence, repays well for

care bestowed in harvesting these portions of the crop. In 1851, I made a large quantity of corn stalk provender, and tested its nutritive qualities as compared with dry blades of fodder, and also with common *northern hay*, and found that my mules did better on this food than on the latter,—whilst the difference in their condition was much more plainly observable when fed on fodder and corn. I have made this digression in order to show what I believe a fallacy in our system in furnishing to our laboring animals forage which is deficient in nutriment, or life sustaining qualities, and inadequate to their support. This fallacy too, is the more perceptible when we reflect that there are many resources which would furnish a more remunerating supply of food.

The country abounds in soils well adapted to the raising of good nutritious grasses, and I venture to assert my belief, that within the limits of Newberry district, there are now, a sufficient number of acres which could be made in a single season to furnish more hay, than would feed double the number of domestic animals all told, than are now in the district. But tell a planter to raise *grass for hay*, and he will deride the idea—invariably answering that he “has enough to do to keep the grass out of his cotton.” The swamp grounds, if freed from weeds and bushes, invariably spring up in coarse rice grass, which furnishes good food when cured. The low lands of Newberry furnish a valuable grass, which, for lack of better botanical information, is called “swamp nimble-will,” and which makes good and fine hay. This grass abounds on the waters of Cannon’s creek, in the plantations of Hon. P. C. Caldwell, Simon Gallinan, esq., and others, also on Indian, King’s and Crimms’ creeks. Two acres of this grass were sold by my neighbor John A. Folk, esq., of Pomaria, to a friend of mine, who was brought up on a stock farm, in central New York, who seems well pleased with the return it made for the *fifty dollars* which he paid for a single cutting. If it was not worth the money, my Dutch-Fork friend at least deserves a notice here, for being able to throw dust into the eyes of a live, wide-awake Yankee, and that too in a boggy meadow. The hay from this meadow sold last season at \$1.50 per cwt. in the bale—competing, and being preferred to the best northern hay, in the Columbia market. The common crab-grass—and the crow-foot grass,

both yield excellent hay, and stubble fields of the former, especially in Laurens district, I have observed, which would mow two tons per acre. Nature on all hands, furnishes a bountiful supply for the industry of the farmer to lay hold of, in order to convert it into nutritious food, and I need not be told that we have no grasses in the South fit for hay. It is true if our lands are not sufficiently well drained, the grass is sour, and the hay comparatively valueless, for when the water it contains is evaporated in cutting, the hay then is little left but dry fibre. My experience with the cultivated grasses is limited. Red clover on the clay lands of Newberry, yields fine crops, and an enormous quantity made two years since at Pomaria, the residence of my father, attracted great attention. Egyptian Millet, (*sorgham*) furnishes good hay and is an excellent product for soiling all kinds of stock. The Dourra corn, another variety of *sorgham*, is most valuable for soiling, and I have now as fat a lot of hogs, as I would wish them to be, fed on the green stalks of this grass. The *Premium Suffolk Sow* exhibited to-day has been fed on this food alone for the past month, and is the fattest hog on the ground.—It is rich in saccharine matter, and I prefer it to any other food for hogs during the four months of June, July, August and September. It sprouts rapidly after being cut, and four acres well manured would feed one hundred hogs of all sizes four months. It is also valuable as food for milch cows, and mules. The Guinea grass, so warmly recommended by my friends, the late Mr. Poinsett, and Col. Perry Duncan, of Greenville, succeeds well on any soil. It grows seven feet high in ordinary soil, and does not mature seed. It is to be propagated from roots, and never can be controlled. I think an acre of this grass would yield in high manured land, at least six tons of hay, in a season—and the roots would furnish winter pasturage for swine and sheep, if the ground was plowed up for them. I regard the Pea, as the most valuable for forage of any plant we can cultivate in the South. It is rather difficult to cure pea hay well, but I have found little difficulty when I hauled the green vines directly from the field, and placed them under shelter with layers of poles or rails between the layers of pea vines to ventilate them well, say between every course of four feet in thickness. With sprinkling a little salt on each layer, they cure without other care.



The best rules to make hay, all fall to the ground if the weather does not suit. An excess of rain spoils the mowing, and on the other hand, too much exposure to the sun deteriorates the value of the hay. When it is practicable it is best to put the hay in cocks immediately after the mowers, leaving it in small conical heaps six feet high, built on a base of four feet in diameter. If the heaps should heat, throw off the cap half way down the pile till it cools, and replace it at night. In favorable weather this simple way is the best mode of curing hay. Sugar or its elements constitute the great nutritive principle of cattle forage. The existence of saccharine matter is plainly perceptible to the taste in chewing a piece of green corn stalk. Hence its great value for soiling or cured as forage for winter use. The hay grasses are all rich in this nutrient property. The moment grass is cut, its natural tendency is to decomposition, to separate into elementary constituents, and heat, moisture and air being the agents in effecting this change—the change is hastened in proportion as these agents are permitted to act upon the vegetable mass. If exposed to them all, as in the meadow, the change is rapid, and the hay consequently decreased in value, but if partially, or wholly protected from one, or more, in cocks, or permanent shelters—the tendency to change—to rot—is either retarded or wholly suspended. From these organic facts I am convinced that hay cured by the method above stated, will furnish a greater amount of nutrition than if spread out under the meridian blaze of our fierce southern sun, whose heat in a few hours is sufficient to evaporate the nutritive accumulations of months. If the weather is ordinarily fair, it can be cured at half the cost of the method usually resorted to, and I believe it cures better in cocks in foul weather, than if it is spread out. I, usually, in housing apply one peck of salt to every ton of hay. The sweating which the hay undergoes, impregnates every blade with the salt, which causes it to be relished by animals. I have also found when hay was not properly cured that it could be much improved by housing with alternate layers of wheat or other straw, and if this is sufficiently salted it will all be converted into excellent food.

Let every farmer who pretends to feed an animal, procure a good straw or shuck cutter, (Ruggles, Nourse & Co.'s, is the best and can be had at A. Stearnes',

Columbia,) and if he honestly uses it, his animals will have time to rest and sleep after they have finished eating their forage, and when called again by the morning's light to labor, they will be fully refreshed and invigorated by this essential preparation of their food.

A. G. SUMMER.

#### Mode of Planting and Cultivating Cotton.

MESSRS. EDITORS:—Below I will give you the product of six acres of poor, sandy ridge land, this year—my mode of planting and cultivating, which I follow altogether. I have now picked seventy-three hundred and nineteen pounds, and have, I think, and it is the opinion of others, open and growing bolls enough to make one thousand pounds more.

*Mode of Planting.*—The land was in cotton last year without manure. I run a scooter furrow in the middle of the old rows, and deposit my manure, consisting of barn-yard manure, and a compost (put up last December) of leaves, scrapings of the earth, ashes and hen-house manure, alternately, at the rates of ten four horse loads per acre. On this manure I throw a ridge with a twister or shovel, and let it lie until planting time. I then finish the bed, and open for the reception of the seed with a very small scooter—drop the seed at the rate of a bushel and a half to two bushels to the acre—cover with two scooter furrows, and when the seed begin to sprout, I knock off with hand rakes.

*Mode of Cultivating.*—As soon as the cotton gets four leaves, I start all hands to chopping out, to three and four stalks; when they have got start enough, I put some plowers to running round with short broad shovels, with a board on the side next to the cotton, and let it stand till the next plowing, so that the sun can get to the roots. The second working I hoe to one stalk from eight to twelve inches apart, and throw out the middles to the cotton with a shovel. Third working I hoe and run round with a shovel, and let it stand two or three weeks, depending upon the weather. Fourth working, I scrape out the grass, if any, with the hoe, and throw out middles. Fifth working, I run round, and break out the middles at the same time with the sweep, or buzzard. This constitutes the workings of the crop. This year I only plowed this six acres four times in consequence of its locking so early.

I neglected to state in the proper place that my rows were three feet wide. Had they been wider I think I would have made more.

Yours, &c.,

A Prew Boy.

#### Dogs.

We take the following "Fling at the dog tribe," from the Ohio Farmer—not that we expect to accomplish any thing by it in our own state, for we have lost all hopes on this subject, believing as we do that our members are as likely to tax women as dogs—but to show that the citizens of other States suffer from the effects of the dog mania as well as ourselves:

"A Fling at the Dog Tribe.—There are dogs that are useful no doubt. There are also dogs

that are agreeable and handsome pets, especially for ladies that have nothing to do. Hunting dogs for the sportsman, of which he thinks more than he does of his children or even his wife.—These hunter dogs are the recipients of good fare, praises and of tender care, while the children are left out of school because they have no shoes and the wife out of church for the want of a decent dress.

On the whole, the canine race and the women, seem to divide the affections of men. For a dog's faults there are always a thousand excuses; it is all right for a faithful dog to run over the newly made garden beds when a hog would be killed for it, or shut up in a pen and fattened to be killed. A dog may chase the cats all over the house with impunity, when the children would be flogged for the same thing.

He may populate the house with fleas, spend his nights in barking at the moon under your window or at his own shadow, or barking because another dog barks, neither of them knowing what he is barking at, and an excuse is always ready for "Bose," he is such a "good dog."

If the owner's neighbor finds half a dozen sheep dead in his field and tracks Bose straight to his home it produces no conviction against the dog; it is a sufficient reply to the half dozen sheep whose throats are bitten that "my dog never chases sheep."

In 1845 the Legislature fearing that the community would be over run by the rapid increase of dogs, undertook to discourage them by taxation for the benefit of schools and agricultural societies.

If they had proposed to tax married women, the dog owners would not have raised half so great a commotion.

The anti-dog members began to be frightened about their popularity.

Their future political prospects were plainly seen to be in danger and the whole thing failed.

It was shown that there were 500,000 or half a million of dogs in Ohio, and that they cost as much as half a million of hogs. There is, or was then, a law giving a bounty on wolf scalps for the better protection and encouragement of sheep. The amount of money paid out of the treasury varied from 600 to 1200 dollars a year for forty years—in fact it was so good a business that wolves were raised for their scalps.

It was shown that the dogs killed about 30,000 sheep that year, which is more than had ever been killed by wolves since the settlement of Ohio to that time and yet the dog party carried the day.

The breeders of wolves and dogs more than held their own against the breeders of sheep. We wish there had been a column for dogs in the last census tables of 1850. They are certainly too influential a portion of community to be overlooked.

*Cut Feed.*—The question is often asked, whether much is gained by cutting up hay, straw, &c., to feed neat stock.—Something depends on circumstances.—If your hay is of the best quality, your



cattle will eat the whole without cutting, and save you the labor. But if your fodder is mostly poor, or if it has been injured in making, you will do well to cut it short, and mix something with it to make it more palatable.

We have had coarse fodder cut fine and sprinkled with water, and by mixing the whole together, our cattle have been wintered at less expense than on merchantable hay. Cows in milk live well on it, and it seems to be the way of disposing of a quantity of hay that is not good. Straw also may be disposed of in this mode. We make it as saving, as we do by hashing meat that is not fat enough for eating without the addition of butter, or something that will improve the meat.

Husks and corn tops, when well saved, have much virtue in them, and much of it goes into the manure heap; unless particular attention is paid to foddering.—Cattle find it difficult to bite off the stems, though they place one foot on a part of them, while they pull with their teeth and gums. Some farmers cut them up fine for their cattle, and say they would do it even though the stems should be worth nothing for fodder, because of the trouble they make in overhauling the manure. When all of the coarse fodder is cut short there will be no long manure; a shovel will enter a heap, and when spread, a harrow will bury it sufficiently.—*Ploughman.*

*A Hard Cement for Seams.*—A very excellent cement for seams in the roofs of houses, or in other exposed places, is made with white lead, dry white sand, and as much oil as will make it into the consistency of putty. This cement gets as hard as any stone in the course of a few weeks. The lead forms a kind of fluid with the sand; it is excellent for filling up cracks in exposed parts of brick buildings; it is also a good cement for pointing up the base of chimneys, where they project through the roof of shingled houses. We have made this cement and tried it, and speak about it from experience only, for we have no knowledge of its ever having been described in any work.

*Another Good Cement.*—Use the above, only employ half whiting and half sand; there should be about four parts sand and whiting, by weight, to one of lead.

*Another Cement.*—Take and dissolve some allum in a vessel containing water, and while it is in a boiling state, cut up common brown soap into small pieces, and boil it along with the allum for about

fifteen minutes. One pound of allum is sufficient for five pounds of soap. The soap becomes sticky, like shoemaker's wax, and can be drawn out in a similar manner. It is now to be mixed with whiting to a proper consistence for filling up seams, &c. It becomes partially hard after a few months, and adheres to wood very tenaciously. It is not easy to put on, and if there be any moisture in the wood it cannot be made to adhere at all. When dry it is impervious to and repels water; it is slightly elastic, and has advantages in this respect. To make it adhere it must be well pressed down. This cement, like the preceeding two kinds, is the result of experiments; we have tried it and speak with confidence of its qualities.—For the filling up of seams, in parts of wooden building exposed to the weather, there can be no doubt of its good qualities, and it is not very expensive. A putty made with whiting and linseed oil, in the common way, if mixed with some white lead, about one-tenth part by weight, we like better than any other cement we ever tried for cracks or seams in wooden buildings, to be applied outside, but it is not elastic like the cement made with soap and allum.

Our readers will be able to choose for themselves which of these cements, if they require any of them, is best adapted for their peculiar purposes.—*Scientific American.*

#### **Smut in Wheat, &c.**

Messrs. Editors:—The Nov. No. of your excellent journal came safely to hand last evening, its monthly visits are looked for as those of an attached friend—for in truth it claims to be and I cheerfully receive it as a friend to the cause in which I am engaged. In looking over its contents for this month, I was somewhat surprised to find an extract from a letter by me to the editor of the *American Farmer*, on the subject of smut.—The facts and opinions given in said letter, was not done with the view or expectation of getting into a controversy with any gentleman, and more especially with any champion of the "Scientific fungus mushroom, sporule, parasitical plant theorists,"—but at the request of the members of the Stony Creek Agricultural Club, who were convinced by long experience and close observation that smut was produced by insect, and not a parasitical fungus, and were anxious that the facts stated in said letter, should be presented to their brother farmers.—

We are a body of plain practical farmers—like to read the productions of theorists, but prefer to be guided by *experience*. Therefore you will perceive that "our old friend and contributor" did not go into the "taking the bull by the horns," for the purpose of having a regular built fight with his majesty—and I am perfectly willing for him and his subjects to continue peacefully grazing their theoretical pastures, humbly hoping they will thrive, and thriving get fat and cease their roarings against experience. For it is an established fact that these *scientific theorists*, though they have labored dilligently in their investigations, for which they deserve and have received some praise,—yet their conflicting opinions as to the cause and extent of smut, are so very numerous that the plain practical farmer has derived very little if any real benefit from their investigations and discoveries, which, in truth, mainly consists of and are presented to the agricultural mind in some imaginative remarks and loose, inaccurate experiments. Wishing to avoid, and *determined* not to enter into a controversy with "speculative theorists" as to the cause of smut, I shall abstain from further remarks—those already made were called for by your editorial. Yet, whilst I have pen in hand, I will again refer to a subject which we can all understand, and become perfectly satisfied with by putting in practice. I refer to the wintering or feeding our work mules, on wheat straw, that stuff that makes all cattle lousy. Fall of 1845, whilst engaged in seeding wheat, I had the racks in my mule stables filled with good wheat straw at night, in addition to their full feed of corn-fodder, thinking they would partake of it slightly, but to my surprise, the straw was consumed almost entirely every morning—by degrees I had the feed of corn fodder diminished every night, and the feed of straw increased. After the wheat crop was seeded, the feed of corn fodder was stopped entirely, and wheat straw given three times a day with a regular feed of corn or hominy. I expected my mules to decline at first, but in this I was happily disappointed, for they continued in good order, although engaged in hauling marl and plowing, during the entire winter. They were kept on wheat straw until the middle of March, and then the corn fodder was again given. I could perceive no alteration in their condition after the straw was discontinued and the feeding with fodder commenced. It has been my practice since



that winter to commence the feeding of wheat straw to my work mules about the first of November and discontinue its use about the first or middle of March—and after using it for seven winters, I can honestly recommend it as a winter feed for mules. Do not lessen the feed of corn and blame the wheat straw, but continue the usual feed of corn, and give the wheat straw in place of corn fodder—it will be cheaper even to increase the feed of corn a little. Should your mules refuse it at first, do not be discouraged, but give a little fodder and a little wheat straw at first, and diminish the amount of fodder gradually. The best mode of feeding wheat straw is to run it through a good straw cutter then to moisten it with a *very weak brine*, and mix the feed of hominy with it. In stacking or housing wheat straw, it should be sprinkled with strong brine as it is put up. Farmers of the south—especially you who have to buy *northern hay*, try this plan, you can but discard it if you dislike it. I sincerely hope, Messrs. Editors, that none of your subscribers are in the habit of buying northern hay.

Permit me to say a few words in regard to the discontinuance of the Farmer and Planter: Farmers of South Carolina, will you not foster and manfully sustain the only paper in your State devoted to your interest? The Editors of this journal deserve encouragement—yea, liberal support at your hands. Through many hours of severe trial and labor, they have brought this journal to the close of the third volume—it demands patronage at your hands—and now brethren in the cause of agriculture, I will make a proposition to you: discard totally all northern agricultural and political papers, encourage those of your own State, and if you wish to subscribe to more, go south, and subscribe for papers devoted to your interest and the advancement of the south and her institutions. I for one shall cease to patronize any agricultural or political paper north of Virginia—and if I want more, I will find them in those valuable southern agricultural journals—the Farmer and Planter, Southern Cultivator, and a host of others. Farmers of South Carolina, let us come to this determination that we will first of all support the agricultural journals of our own State liberally, and then extend the helping hand to other *southern journals*. Set me down for your next volume. Messrs. Editors, and as our *Club* meets next Friday, I will take pleasure in bringing to their

notice your journal, and will leave no effort unmade to obtain you subscribers. Success to the fourth volume of the Farmer and Planter. Truly Yours,

THOMAS E. BLOUNT.

Burleigh, Sussex Co., Va., Nov., 1852.

#### Letter from B. F. B.

ROBERTSVILLE, S. C. Oct. 1852.

MESSRS. EDITORS.—I regret to learn by the September No. that unless your subscription list is increased, the Farmer and Planter will cease to be published, or be united with a political paper. I desire its continuance, and upon its own footing, unconnected with any other paper; and as an evidence of my feeling I send you a new subscribers name and his subscription for the present volume, if you have the back numbers; if not, for volume four; at any rate be pleased to send him the unpublished numbers of volume three as they are issued. I send you also the names of two subscribers to volume four, and think I shall have the pleasure of obtaining a few more by the 1st of December.

I am not certain whether I am a delinquent subscriber, but not having your acknowledgment for subscription to vol. 3, I inclose the remittance, \$2, which I hope will reach you in safety.

Cotton crops in this vicinity have been cut short by excessive rains in August, which caused the plants to rust and cast their fruits. Corn crops fair, and but for the destruction of corn on the river plantations by the late freshet our section would have been amply supplied with provisions.

I send you a rule for the measuring of corn in bulk, which is shorter, and as it admits of proof, is better in my opinion than that found in your August No., if you agree with me you are at liberty to publish it, though I claim not to be the author having heard of it when a boy.

Trusting the farmers and planters of South Carolina will not allow the paper most devoted to the promotion of their interests to be discontinued for want of sufficient patronage, when its publication is so very cheap.

Respectfully, yours, B. F. B.

**A Very Good Plain Soda Cake.**—Take three cupfuls of flour, one cupful of sugar, one egg, one tablespoonful of butter, two teaspoonfuls of soda, one teaspoonful of essence of lemon; and one cupful of sweet milk. Beat the egg, and mix it with butter and sugar, and soda dissolved in the milk. Add two cupfuls of flour, then mix the cream of tartar, dry with the other cupful of flour, and add that to the other, and roll out and bake at once in flat pans.

**TO MAKE YEAST CAKES.**—Prepare one quart of strong hop water, nicely strained. When boiling hot stir into it one quart of rye or wheat flour. After doing this, add about one tea-cup-

full of cold water. When it is as warm as new milk, add 3 gills of good yeast. Let it stand ten or twelve hours. Then stir and knead into it, as much Indian meal as possible. Roll it out thin, and cut into cakes three inches square.—Dry them on a board, in any airy place in the shade, when thoroughly dried, tie them closely in a bag.

Two or three hours before wetting your bread break three or four cakes into just water enough to moisten them, and you will have very good yeast. These cakes are very convenient, and will retain their goodness six months.

#### Hill-side Ditching.

MR. EDITOR:—I received the seven copies of the Soil of the South, and am, as I supposed I should be, well pleased with it. The agricultural interest south is slowly but steadily gaining ground. But there is still room for improvement. The gullied hill-sides and worn out lands of Georgia, speak in tones of thunder that our present system of husbandry is defective. Hill-side ditching is too little attended to in Georgia; it is the fundamental groundwork of agricultural improvement. You may alternate your crops, *make and save* all the manure you can, and apply it judiciously; but if you permit your hill-sides to wash into the creeks and ocean, you will never gain your object. You will still be a bad farmer. Any man of common energy and skill can improve his lands by hill-side ditching, running horizontal rows, and rotation of crops, without manuring, and by attending to all these, can improve his land seven per cent. annually. I have stopped gullies this year by ditching, from one to three feet deep and corn is now growing in the bottoms of these gullies. I can locate a ditch half a mile long, with my compass and level in ten minutes.\*

I give my ditches 1 to 3 inches fall in twelve feet, according to the steepness of the land. I commence laying off my rows with the ditches on the lower side of the upper ditch, letting the rows empty into the second, and so on, until the field is laid off. It is desirable that all the rows should be of the same width. This I effect by getting a stake as long again as I want my rows, and tying one end of it to the bits of the bridle, and a boy carries the other end right over the first furrow—a hand following behind—to “split out.” In this simple way I have rows perfectly regular. G. D. HARMON.

\*We should like to know how this is done.—Does Mr. H. use the surveyor's compass, and what kind of level?—Eds. F. & P.



## The Farmer and Planter.

PENDLETON, S. C.

Vol. 3., No. 11. - - - November, 1853.

The Rev. THOMAS DAWSON, of Beaufort District, is appointed an agent of the *Farmer and Planter*.

H. P. DOWDIT, of Alabama, is an authorized agent for the *Farmer & Planter*.

## Acknowledgements.

The Hon. J. L. Orr has our thanks for a neat book containing Obituary Addresses on the occasion of the death of the Hon. Henry Clay. Also the funeral sermon of the Chaplain of the Senate on the same occasion.

We are also under obligations to some unknown friend for a copy of the proceedings of the American Pomological Congress at its second session, held at Philadelphia on the 13th and 14th of September, 1852; including the Presidents address, the constitution and by-laws of the society, a catalogue of fruits worthy of cultivation—of new varieties that promise well, and of such as have been rejected; reports of state fruit committees and a list of officers and members of the society. To which is appended an eulogy on the late A. J. Downing, delivered by the President, the Hon. M. P. Wilder.—Would that such reports would apply as well to the fruits of the south as of the north.

Also, for a catalogue of the teachers, pupils and patrons of the Masonic Female Seminary, at Dadeville, Ala., for the year ending Oct. 1852. This school, of the existence of which we were not before aware, seems to be in a most flourishing condition and argues well for the ancient and honorable institution from which it emanates.—The Rev. B. T. Smith, Principle.

We have received from Mr. Roderick Norton, at the base of Whiteside Mountain, Macon county, N. C., a cabbage, which although much mutilated when received, measured 3 feet 5 inches in circumference. We did intend to weigh it but some two legged cattle got into our office and demolished a portion of it in the shape of cold slough before we had an opportunity of doing so.

We have also received from Mr. A. P. Reeder, of Rockwell, Pickens district, a potato of the yellow yam variety, which, when dug, weighed eight and three-quarter pounds. Mr. R. raised at the rate of 410 bushels per acre. Land measured by M. S. McCay of our district.

## Letters Received since Our Last.

S. S. M., *White Hall, S. C.*—Your excellent letter, friend M., is received; a part of which we hope you will excuse us for publishing, as an example to other friends that have not yet spoken but who we have now no doubt will make a fair showing in due time. Amount, \$5, credited to names sent.

MESSRS. EDITORS.—I regret to see that you entertain doubts as to the continuance of the

*Farmer and Planter*—the only agricultural paper in the state—and that too for want of pecuniary aid. Is it possible that the intelligent farmers and planters of South Carolina are too poor, or rather, should I not say, too *stingy* to spare from their abundance the little mite of one dollar, which would secure to themselves the permanency of a great fountain of agricultural intelligence, from whence all might draw! No!—This is not the case. The farmers of South Carolina are intelligent, wealthy and generous, and all that is necessary is that the friends of the paper, with subscription list in hand, should make personal application to each and every one of them, and I will guaranty that the dollars will be handed in by scores. To prove that this will be the case, not long since at the close of the polls at this place, when only a few persons were remaining, mention was made of the precarious situation of your paper, and with a few exceptions, every one present subscribed for it; and I have no doubt that if the effort had been made sooner I could have obtained twenty names. I know that I can do more yet, and so can the friends scattered through the state, if they will but make pointed application to the farmers in their neighborhood.

But when I commenced writing I only intended to inclose \$5 and request you to send the *Farmer and Planter* to this office to the address of the names below, instead of writing a homily upon the culpable want of that agricultural spirit and pride among our farmers, which should prompt them to support the only journal devoted to their peculiar interests.

Yours truly, S. S. M.

B. F. B. *Robertsville, S. C.*—Yours with amount inclosed has been received with your new list of subscribers for which please accept our thanks. Your remittance for the present volume has not come to hand, which we regret; for although our papers often miscarry, and we have to send others in their places, yet it but rarely happens that a letter containing money and directed to us fails to come to hand.

Your rule for measuring corn in bulk, receipt for founder in horses, with a part of your letter which, we take the liberty to publish, will be found in another column. They are very acceptable.

D. H. K., *Buckhead, S. C.*—Yours is rec'd with amount enclosed for S. L. and back No's. sent to him except No. 1, which we have not.—Hope to hear from you again.

J. R. D., *Red Hill, S. C.*—Amount inclosed for yourself and J. B. T. has been rec'd. You do not say what volume you want; we have written you on the subject.

R. B. C., *Hazlewood, S. C.*—Yours with name of Col. E. M. as a subscriber for next year is received. Please send us more of the same sort.

P. M., *Monticello, S. C.*—Yours inclosing one dollar for J. M. is rec'd and placed to his credit.

P. M., *Glenn Springs, S. C.*—Amount for J. L. W. and J. W. M., received and papers commencing with Nov. number sent as directed.

P M, *Buckhead, S. C.*—Yours enclosing two dollars for T M L is rec'd and credited.

Rev. T D, *Blackville, S. C.*—Yours enclosing five dollars is rec'd with your list of new subscribers, for which many thanks are due. We have attended to your request in sending back numbers, except those marked "exhausted," on envelop.

H W A, *Laurens C H, S. C.*—Amount enclosed for Col. T F F, received and papers forwarded, Can supply back numbers, except number 1.

R J L, *Adam's Run, S. C.*—Your highly appreciated letter with five dollars enclosed is received, with list of new subscribers for volume 4, and credited as directed. And as we have taken the liberty to publish many letters recently sent us, encouraging the continuance of the *Farmer and Planter*, we do the same with yours. This, every one will see the importance of our doing, more particularly at this time than has been the case heretofore or may be hereafter. There are very many of our subscribers that we have not heard from and but the present number to publish of volume 3.

J M W H, *Blue House, S. C.*—Thank you, friend H, for your new list; all right—hope you may be able to do more; back numbers sent as requested.

Hon. A K F, *Kingston, Miss.*—We are greatly obliged to you, dear sir, for your most acceptable communication on the Cherokee Rose Hedge, which we have been for some time past looking for. It shall appear in due time. The amount, five dollars, enclosed for yourself and others is also received and applied as directed for volume 4, to commence in January 1853.

Hon. J S, *Stony Point, S. C.*—Yours enclosing three dollars has been rec'd and applied as directed. Have sent you a receipt as requested.

P M, *Huntington, S. C.*—Yours is received and amount enclosed credited as directed.

J Mc D C, *Rutherfordton, N. C.*—Yours enclosing two dollars has been received and credited to your account in full.

J W K, *Murray's Ferry, S. C.*—Yours is received enclosing two dollars for volume 3 and 4 all in good time. We duly appreciate your good opinion of the *Farmer and Planter*, not doubting, as you say, that "every man who will read it will find something to improve his knowledge, if it is only in the business of gardening, should he have no field to operate in."

J W F, *Clinton, Ala.*—Yes friend F, yours was received with amount enclosed, and the missing back number sent as requested; we send it again however, which is no uncommon occurrence with us. We have also written you.

W T C, *Laurens C H, S. C.*—Your very acceptable letter and communication for the *Farmer and Planter* is rec'd, for which please accept our thanks. We want just such plain, practical information on the management of our crops as you have given us. Why do not more of our subscribers do likewise?

P M, *Black Oak, S. C.*—Yours enclosing one dollar for E F is rec'd and credited. Will post masters please inform new subscribers that



the postage of letters, if not franked, must be paid in advance.

P M, *Waterloo, S C.*—Your enclosed for new subscriber D J W is received and entered.

J H, *Walterboro', S C.*—Very much obliged to you, friend H, for your very respectable list and amount enclosed. We send the back numbers, (with the exception of number 1, which is out,) to the subscribers at Blue House as directed. You say that with a little exertion you can double your number. We have no doubt of it, and so might most of our subscribers that have not already doubled their former lists. Do friends, exert yourselves.

P M, *Wellington, S C.*—We have written you enclosing a receipt for B B and R McC, which was unnecessary, as we give notice of all receipts in our next succeeding number after the letter enclosing amount is received.

P M, *Pleasant Hill, Ala.*—Amount received and credited to Col. W T M.

Hon. J H B, *Malino, Miss*—Yours, friend B, is received with new list and shall be attended to in due time.

T H C, *Walton, S C.*—Yours enclosing amt for volume 3 is received. The last volume was sent you as we understood the order, we presume, as we are not in the habit of sending back numbers without an order to do so.

E J M, *Edgefield C H.*—Yours is received enclosing two dollars, which is placed to your credit.

P M, *Sterling Grove, S C.*—Yours is rec'd enclosing four dollars, which is credited as directed. Our friend J C should not allow his neighbors to take his papers from the office and then blame us because he does not receive them.

T E B, *Burleigh, Va.*—Thank you friend B for your most welcome communication. We are glad to have succeeded in drawing you out. It has been some time since we have heard from you directly, though nothing passes from your pen through our excellent exchanges, the American Farmer and Southern Planter, that does not meet our eye and approbation.

We did not suppose you were anxious or even desired to get into controversy, any more than ourselves, on the cause of smut in wheat; but as you had given us your belief, and the reasons for "the faith that in you lay," through the columns of the American Farmer, which coincided with our views on the subject, we were pleased to make the remarks referred to in your communication, which will be found in this number of our paper, and from which we have additional pleasure in finding that other practical men believed with us. One of J H II's communications on the cause of smut in wheat, to the Genesee Farmer shall appear in our next.

The Farmer and Planter yet has its head above water, and if its friends do not desert us it shall continue to float; although there may be attempts to sink us.

Maj. C W, *Ashapoo, S C.*—Yours enclosing your subscription for next year has been rec'd; your request shall be attended to.

T C, *Greenwood, S C.*—Amount for new subscriber at Phoenix received and entered.

G W T, *Spartanburg, S C.*—Yours is rec'd. You will receive the first number for your list in January, 1853. Thank you; can you make up a full club?

The Hon. JOEL H. BERRY, writes us from *Jackson, Miss.* From his letter we beg leave to take the following extract:

"Should the publication of the Farmer and Planter be continued, and I hope it will no longer be made a matter of question of doubt, I would respectfully suggest that Mr. Farrars' communication be reserved for the January number, or the commencement of the fourth volume.—This will be the means of securing a great many new subscribers. M. F. showed me his manuscript copy before it left this city, and I have no hesitation in saying, that it is a *full, complete and satisfactory* account of the cultivation of the Cherokee Rose. And it has this further advantage: no man in this state is more *reliable*, than the writer of that article, and what he has communicated is *the result of his own experience*.

He sent me a box of cuttings last winter, that were growing finely when I left home. Although we have an abundance of timber in Tippah Co., yet I think the Cherokee Rose is a *cheaper, a more durable*, and in many respects, a *better fence*, than one made of rails. In South Carolina where timber is scarce, it will be an invaluable acquisition. To all persons who desire to enclose orchards, or any piece of ground so as to prevent the ingress and egress of negroes and others, except through the gates, the Cherokee Rose will be of great advantage. On some plantations in this state I am told that it is utterly impossible for the negroes to get either *in or out* except the gates be unlocked. In conversation with Mr. F. to-day, he informed me that should you or any of my friends in South Carolina desire it, he would at any time with great pleasure put you up a box of cuttings *gratis*, and ship them from Natchez to Charleston, to the care of any one who might be designated, and who would pay the freight on them."

The communication from the Hon. A K F, as you will see above, friend B, is rec'd, and but for your suggestion should have appeared in this No. We are gratified to add Mr. F's name to our list of contributors, as we shall also be to add yours at as early a date as may suit your convenience. The kind offer of Mr. F, to furnish the cuttings of the Cherokee Rose without charge "to us, or any of our friends, in S. C.," is duly appreciated; we believe, however, there is great abundance of it in the state. We have enough of it on a farm formerly owned by the

venerable F K Hager, to supply our district in cuttings.

G L S, *Benton, Ala.*—Gently obliged, friend S, for your good will and kind attention. The amount you enclosed pays for yourself and new club for next volume; the January number shall be sent to each as directed.

D S, *Longmire's Store, S C.*—We shall be pleased to hoe our row with you, and as many more of your neighbors as you can induce to take a through with us for the crop of 1853.—We are putting our tools in order for the work.

A friend writes us from Charleston, S C.—

"The Fair was very well attended, but not so many contributions as usual. The Regatta came off handsomely, so the knowing ones say, or rather, those who were interested in it. I saw but one race, the southern boys, or rather *darkies*, laid it on to the Yankees, when it came to pulling oars. But, sir, the Poultry Exhibition exceeded any thing I ever imagined it to be. We know nothing about *big chickens* in the mountains. I saw some eight months old three feet high. You ought to get some of the improved breed in your town. I saw two pair sold for \$100—the average price, however, is about from \$15 to \$25 per pair."

#### Heaves in Horses.

This disease known as heaves, bel-lowses, thick wind, &c., a friend desires a remedy for. When it has run on a horse for any time we believe it is rarely cured. Strict attention to feeding on moist cut food—either blades or hay—mixed with meal, with occasionally, say once or twice a week, a drench of one quart of strong tea made by boiling pine buds, will prove a palliation, and in recent attacks, a cure of the disease. We once relieved a mare of our own by feeding all her fodder wet. Even when not cut up, we had the bundles sprinkled with or dipped into water before being put in to the rack. As long as the practice was followed the disease was checked, but shortly after returning to dry fodder, the disease would again make its appearance. So you will perceive, as is said of liberty, eternal vigilance is the price of the remedy. We have heard of horses being relieved by taking them to a grazing country, especially from a free stone to a limestone country and turned out from work one season. Heavy work shortly after eating aggravates the disease very much and should be avoided if possible.—*Eds. Farmer and Planter.*

To preserve meadows in their productiveness it is necessary to harrow them every second autumn, apply top dressings and roll them.



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